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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/797,183

03/11/2004

Taiji Ema

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11/01/2004

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EXAMINER

NGUYEN, CUONG QUANG

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 11/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/797,183	EMA ET AL.	
	Examiner	Art Unit	
	Cuong Q Nguyen	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03-11-04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

1. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miki et al. (US 5,499,207) in view of Miyake (US 5,403,766).

Regarding claims 1 and 3, Miki et al. discloses a semiconductor storage device comprising: a memory cell transistor (a MOS transistor) inherently having a first diffused layer (a first source/drain layer of the MOS transistor) and a second diffused layer (a second source/drain layer of MOS transistor) formed in a semiconductor substrate, and a gate electrode formed over the semiconductor substrate between the first diffused layer and the second diffused layer with a gate insulation film interposed therebetween

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(col.4 lines 55-67); an insulation film including a layer (102) of phosphorous glass layer (col.5 lines 5-10) and a layer (603) having different etching characteristic from the layer (102) over the (102) layer covering a top of the memory cell transistor and having a through-hole opened in the layer (102) on the first diffused layer and an opening in the layer (603) surrounding the through-hole, the opening having a larger diameter than the through-hole and not reaching the semiconductor substrate; a capacitor storage electrode (104) formed on an inside wall and a bottom of the opening and electrically connected to the substrate; a capacitor dielectric film ((601) formed covering the capacitor storage electrode; and a capacitor opposed electrode (602) formed covering the capacitor dielectric film. See Miki et al.'s Fig.6.

Miki et al.'s Fig.6 does not explicitly show that the capacitor storage electrode electrically connected to the first diffused layer.

It is conventional and also taught by Miyake's Fig.1C that the capacitor storage electrode commonly formed to electrically connect to the first diffused layer of MOS transistor (memory transistor) in order to store the information from the second diffused layer (the bit line of memory).

It would have been obvious to one of ordinary skill in the art to form Miki et al.'s memory device such as the capacitor storage electrode electrically connecting to the first diffused layer of the memory MOS transistor as taught by Miyake in order to stor the information in the capacitor storage electrode when the memory transistor is on state.

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Regarding claim 2, as shown in Miki et al.'s Fig.6, the capacitor storage electrode includes a columnar conductor (105) buried in the through-hole and projected in the opening (above the bottom surface of the opening which is an upper surface of layer 102).

Conclusion

3. Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 872-9306. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.
4. Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to CUONG Q NGUYEN whose telephone number is (571) 272-1661. The Examiner is in the Office generally between the hours of 6:30 AM to 5:00 PM (Eastern Standard Time) Monday through Thursday.
5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Eddie Lee who can be reached on (571) 272-1732.
6. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center Receptionists whose telephone number is 308-0956.

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A handwritten signature in black ink, appearing to be 'Cuong Nguyen', written in a cursive style.

Cuong Nguyen

Primary examiner

10/28/04